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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,078	01/18/2006	Yasushi Inagaki	283042US90PCT	3699
22850 7590 11/16/2009 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER KALAM, ABUL				
ART UNIT 2814		PAPER NUMBER		
NOTIFICATION DATE 11/16/2009		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/565,078

Applicant(s)

INAGAKI ET AL.

Examiner

Abul Kalam

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 9-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being obvious over Kanbe et al. (US 6,333,857; hereinafter, Kanbe) in view of En et al. (EP 1117283; hereinafter, En).

Regarding claim 1, Kanbe discloses a multilayer printed wiring board (Figs. 1 and 2) comprising:

a multilayer core substrate (110, Figs. 1 and 3-7) comprising a plurality of insulating layers (111-115), a front conductive layer (106) formed on a surface of a front outermost one of the insulating layers (115), a rear conductive layer (101) formed on a surface of a rear outermost one of the insulating layers (111), an inner conductive layer (102-105) formed between the insulating layers (111-115), and a plurality of via holes (107) electrically connecting the front, rear and inner conductive layers (101-106);

an interlayer insulation layer (121, Fig. 2) formed over the multilayer core substrate (110);

a conductive layer (125, Fig. 2) formed on the interlayer insulation layer and over the multilayer core substrate (110);

wherein at least two of the front, rear and inner conductive layers (101-106) comprise one of a plurality of power source conductive layers and a plurality of grounding conductive layers (col. 16, lines 56-64);

wherein the plurality of power source conductive layers (101-106) or the plurality of the grounding conductive layers (101-106) has thicknesses of which a sum is (6 layers \times 18 μm each = 108 μm ; col. 17, line 64 to col. 19, line 47).

However, Kanbe does not explicitly disclose the thickness of the conductive layer (125) on the interlayer insulation layer (121), and thus, does not disclose wherein the plurality of power source conductive layers (101-106) or the plurality of the grounding conductive layers (101-106) has thicknesses of which a sum is larger than the thickness of the conductive layer on the interlayer insulation layer.

However, En discloses an analogous multilayer printed wiring board (Fig. 23) wherein a conductive layer (3058) is formed over an interlayer insulation layer (3050), and has a thickness (18 μm , ¶ [0478]) equal to the thickness of the conductive layer (3034) formed on the front surface and rear surface of the multilayer core substrate (3030), for the purpose of ensuring impedance alignment and improving the high-frequency characteristic of the multilayer printed wiring board (¶ [0475]-[0478]). Thus, En discloses wherein the sum of the thicknesses (¶ [0478]: 2 layers \times 18 μm = 36 μm)

of the conductive layers (3034, Fig. 23) formed on the front and rear of the multilayer core substrate (3030) is larger than a thickness of the conductive layer (3058) on the interlayer insulation layer (3050). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Kanbe and En, to form the plurality of power source conductive layers or the plurality of the grounding conductive layers having thicknesses of which a sum is larger than the thickness of the conductive layer on the interlayer insulation layer, for the disclosed purpose of providing high-frequency characteristic and impedance alignment.

Regarding claims 2-7, the combined teaching of Kanbe and En disclose the multilayer printed wiring board wherein when the sum of the thicknesses of the power source conductive layers (101-106, Fig. 2) is α_1 (6 layers \times 18 μm each = 108 μm) and the thickness of the conductive layer (125) on the interlayer insulation layer (121) is α_2 (18 μm), the relation between α_1 and α_2 is $1.2\alpha_2 < \alpha_1 < 40\alpha_2$ and assuming that the sum of the thicknesses of the grounding conductive layers (101-106) in said multilayer core substrate is α_3 (36 μm , ¶ [0478]), the relation between α_3 and α_2 is $1.2\alpha_2 < \alpha_3 < 40\alpha_2$.

Regarding claim 8, Kanbe discloses the multilayer printed wiring board wherein the thickness of the front and rear conductive layers (101 and 106, Fig. 1) are set to be is smaller than the thickness of the inner conductive layer (through hole conductors 107a and 107b).

Response to Arguments

Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abul Kalam whose telephone number is (571)272-8346. The examiner can normally be reached on Monday - Friday, 9 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. K./
Examiner, Art Unit 2814

/Wael M Fahmy/
Supervisory Patent Examiner, Art
Unit 2814